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AUTHOR Robinson, Mary L.
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ABSTRACT

This paper investigates the popular belief that children's attitudes toward school and particular subjects have a positive relationship with their school and subject achievement. Definitions of attitude by L. L. Thurstone, L. W. Doob, and M. Fishbein are presented as a basis for the investigation. The difficulties involved in assessing attitudes are revealed through examples which illustrate the interrelationship among expressed opinions, beliefs and intentions, behavior (responses), and actual attitudes. Empirical studies which examine the correlations between attitude and achievement are discussed. The paper proposes that it is probable that an observed relationship between attitude and achievement does not necessarily exist. The paper concludes with the implications of the last statement for educators. These implications include the need to study more carefully the reasons why attitude is not a strong correlate of achievement. A second implication is that educators should not be too hasty nor too sure in making assessments of attitudes from students' expressed opinions or overt behavior. (JBW)

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ATTITUDES AND ACHIEVEMENT: A COMPLEX RELATIONSHIP

BY

Mary L. Robinson
Associate Professor
Mansfield State College
Mansfield, Pennsylvania 16933

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ATTITUDES AND ACHIEVEMENT: A COMPLEX RELATIONSHIP

It is commonly thought that children's attitudes towards school and particular subjects have a positive relationship with their school achievement. Intuitively, this is an acceptable truism. However, upon closer examination of the meaning of attitude and of how attitudes theoretically should affect behavior, this truism can be questioned. And indeed, empirical evidence on the relationship between attitudes and cognitive behavior indicates that the intuitively logical relationship frequently does not exist.

Thurstone defined attitude as the "sum total of man's inclinations and feelings, prejudice or bias, preconceived notions,ideas, fears, threats, and convictions about any specified topic" (13: 531). Doob (3) considered attitude to be a learned predisposition to respond to some object. Fishbein (5) suggested that the predisposition to respond would be consistant, that is, the subject holding an attitude would tend to respond to the same object in a similar manner when meeting it on different occasions. These definitions would imply that attitude is an "inner" construct, that is, it exists as something completely within the "self" of the holder of the attitude. As such attitude in its pure sense cannot be seen by observers and thus, it seems the presence or absence of attitude in the strictest sense cannot be assessed or measured.

However, since attitudes are defined as predispositions to respond to some object in a certain consistant manner, attitude can be judged to be present by observing responses to objects, for example through statements of belief or intention (opinions) and by overt behavior. Thurstone and Fishbein emphasize the concept that these responses and opinions are not

part of attitude but merely an outward expression or indicant of an attitude (13: 532; 5: 483). This situation could be considered to be analogous to the construct of intelligence. It is not known what intelligence actually is but it is defined according to responses to certain types of activities and it is judged to be present by means of this overt behavior.

If the above definition of attitude is accepted, then the problems of assessment of attitudes are many. Thurstone mentions that outward expression of an attitude and the actual inclination of feeling of the subject are not always congruent. The subject may be hiding or modifying his true feelings, consciously or unconsciously, in view of the social pressure of the situation in which he expresses his feelings. Also, the expressed opinions are not necessarily indicators of actual behavior. And actual behavior is not necessarily a result of attitudes held by the subject (13: 532). This means that assessment of attitude by means of opinions and/or behavior may give a very wrong indication of actual attitudes held by the subject.

Another aspect of attitude that makes assessment difficult is that attitudes may be quantitatively the same while being qualitatively dissimilar (5). For example, two students may agree with four out of ten positive statements about mathematics. Although both may be given a score of 4, it is entirely possible that each agreed with completely different statements. Thus, their actual feelings about specific aspects of mathematics may be very dissimilar even while they have "equal" attitude scores.

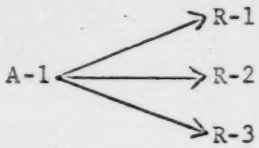
There are other difficulties in assessing attitude by means of opinions or behavior. Doob expressed the view that people may learn to hold the same attitude toward some stimulus but it is not always possible to determine the response that will be made given that same stimulus. Different responses may be given even when the stimulus and the attitude toward the stimulus is

the same (3). One might describe a situation to illustrate this. Suppose there were three children who strongly dislike mathematics. One child may respond by feining illness while doing a math assignment and thus get dismissed from the situation. Call this Response 1: R-1. The second child may doodle on his paper and hope the teacher won't notice that he isn't doing his work (R-2). The third child may work diligently in order to finish quickly and then go on to some preferred activity (R-3).

Chein described a relationship which included beliefs as well as responses. People can hold similar attitudes toward an object but have different beliefs about it. (3). An illustration of this may be two students who equally dislike mathematics. Student one might feel that math is important for him but he finds it very difficult to understand. Call this Belief 1: B-1. The second student may be able to understand math but finds it worthless to him (B-2). These different beliefs may then cause the two students to respond in different ways while holding the same attitude, that they dislike math.

Models of these statements will be useful to show clearly their implications (Figures 1 and 2).

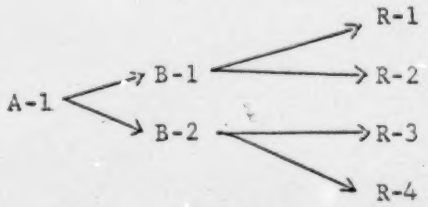
A - 1 is "dislikes mathematics"



Explanation.
One attitude may be manifested by a variety of responses. Thus, knowing A-1 is not a sure means of predicting the R which will be made.

Figure 1. A model of Doob's comments (3).

A-1 is "dislikes mathematics"



'xplanation.

One attitude may be manifested by a variety of beliefs and thus by different responses. Knowing A-1 or B-1 is not a sure way of predicting the R which will be made.

Figure 2. A Model of Chein's Comments (2).

Thurstone's view that feelings and behaviors are not true indicators of a specific attitude suggest a third model (Figure 3). This model would indicate that one response may have been the result of one of a variety of beliefs which in turn may have resulted from a variety of attitudes. Thus, observed behavior or beliefs are not necessarily accurate assessments of attitude. An illustration of this would be three children who finish a math assignment quickly. One may dislike math and want to dispense with the activity as rapidly as possible; one may enjoy math and get pleasure from working accurately at a fast pace; one may be indifferent and has done his assignment quickly and carelessly. The behavior (finishing quickly) is not an indicator of beliefs or of the underlying attitudes.

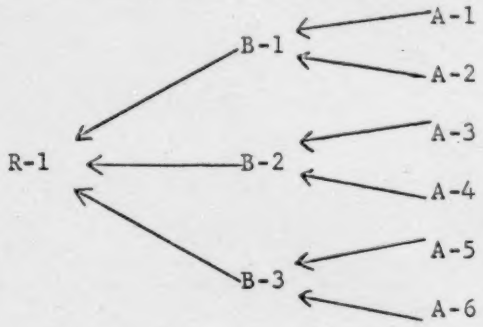


Figure 3. A Model of Thurstone's Comments (13).

These models and illustrations of Thurstone, Doob, and Chein's views of the relationships among actual attitudes, expressed opinions (beliefs

and intentions) and behavior serve to make one aware of the fact that it is difficult to know for sure a person's attitude from a mere expression of opinion or even from observation of behavior. Also, knowing his attitude is not a sure way of predicting his behavior.

Within this framework, consider some statements as to why it is felt that assessment of attitudes is important and also at some empirical studies concerning attitudes as they relate to achievement.

Studies have been done which have been based on the assumption that attitudinal factors are important for cognitive achievement in mathematics. In its international study of mathematics achievement, the Council of the International Project for the Evaluation of Educational Achievement (IEA) defended its measurement of attitudes by the statement that

> the attitudes toward mathematics that the students hold are almost as important as cognitive learnings in mathematics. . . .If while learning mathematics, the student acquires a dislike for the subject, further learning is unlikely and part of the purpose of instruction is lost.
>
> While it is more difficult to measure these attitudes, some of them have the greatest importance in the careers of individuals and their contribution to society. (6: 73)

Johnson also makes a strong statement concerning the importance of attitude in learning mathematics.

> In our concern for improving the mathematics curriculum and increasing enrollment in mathematics, have we forgotten a crucial factor, namely, attitudes? Have we forgotten that learning involves emotional vectors such as attitudes? It is the attitude that our students develop which are likely to stimulate or stop further study of mathematics. It is the attitudes which we build that are highly involved in the learning and retention of our subject (9: 113).

Thorndike (12), from a psychological point of view considers interest, wants and attitudes to be an influencial factor in learning. The active attitude, he says, can be considered to be a part of the "total dynamic system of the person at the time." As such it holds the power to evoke

behavior which would not otherwise occur and to alter the behavior of the person permanently. Attitudes can do this because of their ability to predispose a person to respond to a certain situation and to modify connections between a situation and the response, either positively or negatively, depending on the after effects of the response.

Manske considers the importance of attitudes in learning thusly:

> The effects of attitudes include conditioning the reception, the interpretation, and the retention of ideas; in fact. . . attitudes are determiners of thinking, factors strongly influencial in integrating members of a group and forces which move men to action. (10: 2)

These thoughts on the importance of attitudes as determiners of behavior by no means exhaust the comments that have been written. They are however, typical of the feeling among many educators and psychologists that there is an important relationship between attitude and achievement. This relationship, at least intuitively, seems to lie in the idea that attitudes can influence the learner by giving him a predisposition to learn the cognitive content placed before him. Attitudes can reinforce his experiences with the content such that he will have even greater disposition for further experiences with the content. This is assuming, of course, that the attitude is a positive one and his experience is a pleasant one.

Empirical studies have been conducted which examine this intuitive feeling that attitudes affect achievement. Results have not been consistent. However, most of them do not find high correlations between attitude and achievement. Jackson, in a summary of six studies dealing with the relationship of attitude and achievement scores noted that five of the six studies, "cast doubt on the commonsense expectation that there will be a noticable relationship between the way a student feels about his school experience and his relative success in coping with the academic demands of

school." (8: 78) In a review of studies which examined the relationship between attitude and achievement in mathematics, Neale came to the conclusion that "positive or negative attitudes toward mathematics appear to have only a slight causal influence on how much mathematics is learned, remembered and used." (11: 636) Rather, from the results of one study by Cattell which was discussed by Neale, achievement seemed to be related in widely differing degrees to specific attitude factors associated with personality.

Fedon's (4) study with thirty-two third grade children used the Dutton Scale adapted for use with young children. The results indicated a relationship between high positive attitude toward arithmetic and high achievement. However, the opposite qualities, negative attitude--low achievement did not hold true. Of the "negative" pupils, many were also very high achievers. "Middle positive attitude" was related to good achievement but "neutral" students tended to be miscellaneous achievers. Broomes' (1) study with sixty seventh and eighth grade pupils found results similar to Fedon's but which contradict his high attitude-high achievement findings. Broomes found that at the eighth grade level pupils with high grades possess high attitude scores, however pupils with low grades also had high attitude scores. Pupils with average grades had lower attitude scores. The same relationships existed at the seventh grade level. These results point out that the relationship between attitudes and achievement is not a linear one. High achievers can have either high or low attitudes. Those with high attitudes can be high or low achievers.

Cattell's attitude factors mentioned previously in the Neale (11) review indicates that attitude is a construct consisting of many factors each of which operates somewhat independently and with a different relationship

to achievement. Also, the IEA cited earlier, in testing for attitude identified three different factors related specifically to mathematics attitude. These were 1. Attitudes toward mathematics as a process, 2. Attitudes toward the place of mathematics in society, and 3. Attitudes about the difficulties of learning mathematics. (6: 112). The results of each of these taken separately and correlated with mathematics achievement were different. Number 1 was negative, number 2, positive but weak, and number 3 was negative. Two other attitudinal variables, interest in mathematics and the desire to take more mathematics were positively related to math achievement. (7: 154) The Cattell and IEA results give evidence that the construct "attitude" is a multivariant construct with each variable acting somewhat independently in its relationship to achievement.

Jackson (8) felt that lack of consistancy in results and the seemingly lack of a significant correlation between attitude and achievement is likely to be attributed to the fact that all aspects of attitude have not yet been recognized, and the weaknesses in present instruments which measure attitude. Fishbein (5) comments that researchers often do explain the lack of correlations between attitude and achievement in just this manner. He feels that it may be that in doing so the real truth is being masked--that perhaps we should begin to believe the research results and acknowledge the idea that there may not be a real relationship between the two. To do what Fishbein suggests may be a bit difficult for those who seem to have a "sixth sense" about the influence of attitudes on achievement. But in view of research findings and an understanding of how the construct "attitude" manifests itself via beliefs, opinions, and behavior, this position must not be taken lightly.

Suppose that some super-instrument were devised for assessment of

attitudes such that it did measure with absolute certainty what predispositions were present within an individual. Might we then find that, according to our intuition, the relationship between attitude and achievement does exist? Consider again the models in Figures 1, 2 and 3. It is apparent from these models that merely knowing with certainty what attitudes is held will not with certainty indicate resulting behavior. Thus, it would seem that the lack of an observed relationship between attitude and achievement is not entirely a result of poor assessment techniques. It would seem more probable that such a relationship does not necessarily exist.

What implications would this conclusion have for education? First of all, it should cause educators to examine more thoroughly the reasons why attitude is not a strong correlate of achievement. Cattell's findings cited previously (11) indicate a point which should be examined carefully, namely, that factors such as submissiveness, and superego are better determinants of achievement than curiosity, assertion and acquisition. Is it that teachers are rewarding children for being "good, obedient pupils" and thus forcing them to a) respond positively to school work for which they actually do not have a positive predisposition and b) mask their real predispositions in order to be favorably evaluated. If this were the case, a child's actual attitude would not be likely to have much chance to influence what he actually does in the classroom.

Secondly, educators must not be too hasty nor too sure in making assessments of attitude from students' expressed opinions or overt behavior. Nor should they expect a particular behavior of pupils who express certain opinions or beliefs. As emphasized previously, attitudes actually held are only predispositions to respond in a certain way and may be very different from the response that actually occurs. A realization of this may help educators to better understand their pupils' behavior or at least help to

prevent them from making decisions based on faulty judgements concerning attitudes.

When assessments of pupils' attitude is made, care must be taken to put these assessments in proper perspective. These questions should be considered. To what extent is an observed behavior or expressed opinion consistent with a pupil's typical opinions or behavior? To what extent are opinions and behavior manifestations of what the pupil actually believes? To what extent are opinions and behavior being influenced by social pressure from either the adult or peers in the situation? To what extent is the situation itself exerting pressure on the individual at the time the opinions or behavior is observed? Only by considering these questions carefully can opinions and behaviors be interpreted and judged to be, or not to be, reflection of actual attitudes. When attitudes are measured, results must be interpreted cautiously. And this could be done only after a thorough understanding of attitudes and the intricate ways in which they are related to beliefs, intentions and actual behavior.

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